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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/761,772	01/20/2004	Alan Kenneth McCall	1981/689	3683

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EXAMINER	
PHAM, LAM P	

ART UNIT	PAPER NUMBER
2636	

DATE MAILED: 09/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/761,772	MCCALL ET AL.	
	Examiner	Art Unit	
	Lam P. Pham	2636	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 January 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *8-17 and 24-26* is/are allowed.

6)☒ Claim(s) *1-7 and 18-23* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 4/22/2004; 9/29/2004; 5/31/2005
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Misnumbered claims 23-25 (starting with independent claim 23) have been renumbered 24-26. Claims 25 and 26 should depend on claim 24.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-7, 18-19, 21-23 rejected under 35 U.S.C. 103(a) as being unpatentable over **DeZorzi** (US 6232875).

Regards claim 1, DeZorzi disclose a tire monitor (14, 16, 18) configured for mounting to a vehicle, the tire monitor comprising:

a tire condition sensor to produce a tire condition signal (78, 84);

a controller (38, 72) coupled to the tire condition sensor to control the operation of the tire monitor;

a radio circuit (44) coupled to the controller to transmit radio signals based at least in part on the tire condition signal; and

a motion detector (32) coupled to the controller to produce a motion signal indicating motion of the tire monitor as seen in Figures 1-2; col. 3, lines 11-67; col. 4, lines 1-67; col. 5, lines 1-25.DeZorzi discloses the motion

detector is in form of a normally open centrifugal switch that closes upon the associated vehicle tire rotating at a predetermined speed and fails to disclose the motion detector is a shock sensor. Since the motion detector in form of the centrifugal switch and the shock sensors both produce a motion signal indicating motion of the tire monitor, it would have been obvious to one of ordinary skilled in the art to realize that they are equivalent means, and can be used in place of one another.

Regards claim 2, DeZorzi discloses the controller comprises a motion detector interface (not shown) configured to detect the motion signal (logic High) produced by the motion detector; the logic High motion signal indicates that the associated tire is rotating at a predetermined rate and the logic Low indicates either the absence of the vehicle movement or movement at a speed less than the predetermined speed as seen in Figure 2; col. 4, lines 61-67; col. 5, lines 1-24.

Regards claim 3, DeZorzi fails to disclose the shock sensor interface includes at least one of an amplifier for amplifying the motion signal and a filter for filtering the motion signal. However, it has been well known in the art of analog sensors, an amplifier, a filter and an ADC are used for amplifying a sensor output signal and for filtering output signal and converting the signal to digital data for storing and processing by a digital processor. Thus, it would have been obvious to one of ordinary skilled in the art to use an analog motion sensor with the components above for converting an analog signal to a digital signal with reducing errors.

Regards claim 4, DeZorzi fails to disclose comprising an analog to digital converter coupled with the shock sensor to convert the motion signal to motion data for interpretation by controller as an indication that the vehicle is stationary or in motion since the motion detector outputs a digital output (logic High or Low). However, DeZorzi teaches of using an Analog to Digital converter (94) coupled to the tire condition sensors for converting condition signals to data for interpretation by the controller as seen in Figure 2. Thus, it would have been obvious to one of ordinary skilled in the art to recognize that an analog motion detector was used would coupled to the Analog to Digital converter for converting signals to data for interpretation by controller.

Regards claim 5, DeZorzi fails to disclose expressly a comparator coupled with the shock sensor to produce an indication that the vehicle is stationary or in motion based on the comparison of the motion signal and a predetermined threshold. Since the controller takes input signals including a logic High and a logic Low motions signals at a predetermined voltage, the controller must have a comparing means for comparing the logic High and Low motion signals with a predetermined voltage threshold to assure the motion signal is a logic High or logic Low indicating motion as seen in col. 5, lines 1-18.

Regards claim 6, DeZorzi disclose the controller is configured to place the tire monitor in a low power sleep mode in response to interpretation by the controller of the motion data as an indication that the vehicle is stationary as seen in Figure 3; col. 7, lines 35-45 and col. 8, lines 8-27.

Regards claim 7, DeZorzi disclose the controller comprises:

a shock sensor interface to receive the motion signal produced by the shock sensor and produce an amplified motion signal; see claim 3 for explanation.

an analog to digital converter coupled the shock sensor to convert the amplified motion signal to motion data; see claim 4 for explanation; and

a processor responsive to stored data and instructions to determine a motion condition of the vehicle based on the motion data as seen in Figure 1-2; col. 4, lines 61-67 and col. 5, lines 1-24.

Regards claim 18, DeZorzi disclose a tire monitor operable in a remote tire monitoring system and mountable on a wheel of a vehicle including the system, the tire monitor comprising:

a pressure sensor (78);

a radio circuit (44);

at least one motion detector (32); and

a control circuit (72) coupled with the pressure sensor, the radio circuit and the at least one shock sensor as seen in Figures 1-2; col. 3, lines 11-67; col. 4, lines 1-67; col. 5, lines 1-25.DeZorzi discloses the motion detector is in form of a normally open centrifugal switch that closes upon the associated vehicle tire rotating at a predetermined speed and fails to disclose the motion detector is a shock sensor. Since the motion detector in form of the centrifugal switch and the shock sensors both produce a motion signal indicating motion of the tire monitor, it would have been obvious to one of ordinary skilled in the art to realize that they are equivalent means, and can be used in place of one another.

Regards claim 19, The tire monitor of claim 18 wherein the control circuit comprises:

a microprocessor core (controller);

a pressure sensor interface (see Figure 2);

a motion sensor interface (not shown); and

an analog to digital converter (94) coupled between the pressure sensor interface and the shock sensor interface and the microprocessor core as seen in Figure 2; col. 4, lines 61-67 and col. 5, lines 1-67.

Regards claim 21, DeZorzi disclose the at least one motion sensor produces a substantially periodic signal in response to rotation of the wheel according to the predetermined speed, the control circuit being responsive to the substantially periodic signal to determine a motion state of the tire monitor; a logic High indicates the vehicle moving and a logic Low indicates the vehicle is not moving at all; as seen in col. 5, lines 1-18.

Regards claim 22, DeZorzi disclose the at least one motion sensor

produces a resonant signal (proportional to the tire rotation) corresponding to predetermined vehicle speed in response to motion of the at least one motion sensor, the control circuit being responsive to the resonant signal to determine a motion state of the tire monitor as seen in col. 5, lines 1-18.

Regards claim 23, DeZorzi fails to disclose the at least one motion sensor produces a wideband noise signal in response to motion of the at least one shock sensor, the control circuit being responsive to the wideband noise signal to determine a motion state of the tire monitor. However, DeZorzi disclose

the motion detector output the logic High/Low motion signals when the vehicle is running at certain speed. The motion signals are interpreted by the controller to indicate a motion state of the tire monitor as seen in col. 5, lines 1-18. One of ordinary skilled in the art would consider the motion signals being equivalent with the wideband noise for indicating motion state of tire.

4. Claims 1-7, 18-19, 21-23 rejected under 35 U.S.C. 103(a) as being unpatentable over **DeZorzi** in view of McClelland et al. (US 6710708).

Regards claim 20, DeZorzi fails to disclose the monitor further comprising:

a transponder, the control circuit further comprising a transponder interface coupled to the microprocessor core.

McClelland et al. teach of a tire monitor (12) comprising a transponder and controller comprising a transponder interface coupled to the microprocessor core as seen in Figures 3 and 4; col. 3, lines 35-67 and col. 4, lines 1-67.

In view of McClelland teaching, it would have been obvious to one of ordinary skilled in the art to have a transponder coupled to the controller of the tire monitor for responding to an interrogation signal from a reader/writer device. band noise for indicating the motion state of the tire monitor.

Allowable Subject Matter

5. Claims 8-17, 24-26 allowed.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Munch et al. (US 6292096) disclose a tire condition monitoring system.

Kim (US 5378973) discloses an analog sensor using amplifier, filter, and ADC.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lam P. Pham whose telephone number is 571-272-2977. The examiner can normally be reached on 9AM-6PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeffery A. Hofsass can be reached on 571-272-2981. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JEFFERY HOFSASS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600

Lam Pham
August 20, 2005.